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**MANAGING SUBSTITUTE TEACHERS AND SUPPORTING IT-
SOLUTIONS IN COMPREHENSIVE SCHOOLS**

Finland

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ABSTRACT

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The topic of this thesis is important for Finnish schools as the funding of schools has been reduced and it is harder for schools to meet the requirements of law considering students right for education. In this manner comprehensive schools need more convenient and cost-effective ways for recruiting substitute teachers to make sure that the students will get the best possible teaching even when their regular teacher is absent. Substitute hiring and management requires a lot of work even on daily basis in the comprehensive schools.

Theoretical part of this thesis consists of human resource management, legal aspects and current possibilities for using IT-tools when managing substitutes. These theoretical parts will be compared with the results of the research about how the substitute teachers are managed and recruited in comprehensive schools in Finland. Baltic countries are also reviewed briefly.

The research for this thesis was made with qualitative method by sending a questionnaire to comprehensive school personnel in Finnish schools in order to get information about the actual practices and to get suggestions of how these practices could be developed.

The outcome of the research was that the teachers and administrative personnel are spending a lot of time to find substitutes for the absences. The workload is partly due to the fact that the current systems in use are not always updated and the teachers struggle to reach suitable and adequate substitute.

Findings of thesis conclude that there is need and willingness to start using IT-tools to support substitute management and that existing substitute databases are not fully utilised. Developed mobile application should connect to several databases such as recruitment service and administrative soft-wares to reach and allow diverse communication between teachers and substitutes.

Keywords:

Substitute, education, recruiting, it-tools

TIIVISTELMÄ

Oulun seudun ammattikorkeakoulu
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Opinnäytetyön nimi: Managing substitute teachers and supporting IT-tools in comprehensive schools

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Tämän opinnäytetyön aihe on ajankohtainen suomalaisille kouluille, sillä koulujen rahoitukseen on kohdennettu leikkauksia ja täten koulujen kyky noudattaa oppilaiden oikeuksia koskevia lakeja vaikeutuu. Tästä johtuen perusasteen oppilaitokset joutuvat kehittämään sijaisopettajien rekrytointikäytäntöjään käytännöllisempään ja taloudellisempaan suuntaan. Pätevien sijaisopettajien hankinta kiireellisillä aikatauluilla voi olla suuri taakka opetushenkilöstölle normaali työn lisäksi.

Opinnäytetyön teoreettisessa osuudessa käsitellään henkilöstöhallinnon teoriaa, laillisia näkökulmia opetushenkilöstöä koskien sekä olemassa olevia sijaistenhallinnan IT-ratkaisuja ja tietojärjestelmiä. Teoriaa ja käytäntöjä heijastetaan tutkimustuloksiin opettajien sijaistenhallinnasta ja tutkitaan minkälaisia puutteita ja mahdollisuuksia peruskoulujen sijaistenhallinnalle löytyy. Suomen ohella myös Baltian maiden käytäntöjä käsitellään lyhyesti.

Opinnäytetyön tutkimusmetodi on kvalitatiivinen. Tutkimus toteutettiin lähettämällä sähköinen kyselylomake suomalaisten peruskoulujen henkilökunnalle. Kyselyn tavoitteena oli saada informaatiota nykyisistä käytännöistä ja ehdotuksia suoraan henkilökunnalta, siitä miten heidän mielestään sijaistenhallinta käytäntöjä tulisi kehittää edelleen.

Tutkimustulosten mukaan opettajat ja muu hallinnollinen henkilökunta käyttävät paljon aikaa sijaistenhallintaan. Työmäärä johtuu osin siitä, että nykyiset ohjelmistot ja tietokannat eivät ole aina ajantasaiset sijaisten saatavuuden ja pätevyyden suhteen sekä ohjelmistojen käytettävyyksissä löytyi puutteita.

Opinnäytetyön johtopäätös on, että peruskoulujen henkilöstöllä on halua ja tahtoa sähköisten apuohjelmien käyttöön sijaistenhallinnan apuna. Nykyisten sijaistietokantojen käyttäminen ei sellaisenaan ole täysin luontevaa ja tehokasta. Mobiilisovelluksen tulisi yhdistää sijaistietokantoja sekä hallinnollisia ohjelmistosovelluksia, jotta saavutettaisiin laaja-alainen sijaisten ja opettajien välinen ja keskeinen viestintä.

Asiasanat:

sijaiset, opetusala, rekrytointi, sähköiset työkalut

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Table of contents

Introduction	7
1.1 Basic education in Finland	9
1.2 Purpose of the study	9
1.3 Limitations	10
2 Theoretical framework	11
2.1 Human Resource Management	11
2.1.1 History and development	11
2.1.2 Human resource planning	13
2.1.3 Human resource information systems	15
2.1.4 Recruitment and selection	17
2.2 Education personnel	18
2.2.1 Legal aspects of education personnel	18
2.2.2 Eligibility of teaching personnel	18
2.2.3 Governance of primary schools	20
2.2.4 Teacher absences in Finland	21
2.2.5 Comprehensive school recruiting methods in Finland	22
2.3 Substitute management	22
2.3.1 Previous studies on substitute teacher recruiting	23
2.3.2 Existing IT-solutions for recruitment	24
3 Research findings	27
3.1 Respondents	27
3.2 Recruitment process of substitutes	28
3.3 Analysing use of IT-solutions and the possibilities	35
3.4 Suggestions for future research	43
4 Baltic	44
4.1 Basic education in Baltic	44
4.2 Research about Baltic	45
5 Discussion and conclusions	48
6 References	51

Introduction

During the past twenty years Finnish Government has done large cuts in public service sector. In education this has resulted to close down of approximately 1500 comprehensive schools since 1990 and during the following year 2015 around 2000 teacher positions are under a threat of being cut in seek of savings. This concerns especially temporary teachers and young people moving from their studies to working life. (Stat.fi, 2014, cited 26.11.2014)

As schools are still forced to make budget cuts while pressured to maintain quality of education they are in need of administrative reforms. For example, hiring and managing substitute teachers to cover absences can be costly and time consuming. For finding and hiring substitute teachers there are existing and up-to-date databases but the usability and level of efficiency can vary a lot between schools.

Subject for the thesis was offered by case company which provides IT-solutions for recruitment, HR management and HR development for organisations. Human resource management is a wide field of operations and has a variety of possibilities for research. One of the company's current interest area is substitute management in comprehensive or secondary level schools. This in mind, the thesis has been limited to research the ongoing methods and possibilities to use Information Technology as an assisting tool for substitute management in comprehensive schools.

The aim for the thesis is to research the methods that comprehensive schools use to find and manage substitute teachers when sudden need or planned absence arises. Research aims to find out if schools are using IT-solutions designed for substitute management and would they alternatively be willing to take one into use. The research will be made in mainly in Finland and to get comparative aspect from an international point of view, Baltic countries are briefly viewed in seek of new potential market for the case company.

The main research questions of this thesis are how substitute teachers are chosen and by who, in comprehensive schools. Main question concentrates to finding the methods that are used for substitute recruitment and management and if there is willingness for development for using IT-solutions to support the processes.

The research results are expected to give information for the case company about the methods that are currently in use and to provide guidance that helps in the development of their product for the substitute management. Educational organisations will hopefully get solution that will save time and money in substitute management.

This report consists of two separate parts. A theory part consists of using second hand information from books and academic articles. Empirical part will consist of the research and analysis based on questionnaire aimed to teachers, principals and education secretaries. The thesis is limited to research only larger, over 300 students, comprehensive schools. In Baltic countries research is also conducted to kindergartens but the main emphasis is on Finnish situation of substitute management.

In the first chapter of this thesis theoretical framework is presented. It covers human resource management, recruitment, legal aspects and information technology tools currently used in schools for managing and hiring substitutes. Also, previous studies on substitute management will be discussed. Furthermore there is examination of teachers' amount of sick leaves and possibly amount of other types of absences to find out the importance and frequency of finding substitute teachers. Following chapter will lead to the empirical part of conducting the research and presenting findings that rose from the questionnaire conducted around Finnish schools. After the main research Baltic countries are analysed briefly. Finally, conclusion of the comprehensive schools substitute management is presented along the overview of using or taking into use the IT-solutions supporting substitute teacher hiring and management.

Data of this thesis is acquired with two different methods, from theoretical academic sources and by empirical study. Theoretical sources include academic books and articles as well as information about existing IT-solutions for recruitment and governments' statistics. The empirical study consists of questionnaire conducted by Webropol to education personnel.

The basic assumption in the base of this research, about substitute teachers' management in comprehensive schools, comes from the case company's previous research and interviews on Finnish comprehensive schools. Assumption is that substitute management is scattered in the organisation and that teachers participate in the processes more than law requires them to.

1.1 Basic education in Finland

In Finland compulsory education is arranged to children from age 7-16. Primary school starts at the age of 7, in some cases at the age of 6, and ends when children are 12 years comprising grades 1-6. Upper comprehensive school takes three year, grades 7-9. The obligation to study ends when a child has completed the syllabus of comprehensive school or when they turn 17. The guardian is required to make sure that the child will be educated the syllabus. (Oph.fi, 2014, cited 26.11.2014)

Finland's primary and upper comprehensive schools had 540 477 students in 2717 educational establishments in the year 2013. The amount of pre-primary school students was 59 700. Most of them, 47 900 were in the kindergarten pre-education groups and 11 800 in primary school groups. Municipalities administer 96% of the primary schools. (stat.fi, cited 26.11.2014)

1.2 Purpose of the study

Purpose of this report is to provide the case company with information about the recruiting process of substitute teachers and usage of IT-solutions and software in recruitment process. In addition, the gathered data will provide the company with suggestions to further develop their products and services. The Baltic

countries were chosen in order to provide information about other market area and give perspective for the operating models that could be compared to the practices in Finland.

1.3 Limitations

The subject is approached from teachers and school personnel's point of view. The case company is making an IT-solution for the teachers to ease substitute management and hiring so the end-users opinions weight on the solutions development process. The research on the other hand does not consider legal limitations and municipalities' resource limitations there are on substitute hiring and management. Even though there are several laws considering hiring substitute teachers, taking into account their competencies and the actual hiring process it has seemed that there yet could be possible market to allow teachers to participate in the processes. Legal limitations are considered more closely in sub-chapters of 2.2.1.

The research point of view is limited to comprehensive schools in Finland. Baltic countries are referred only briefly as the respondent base gotten was not reliable enough for proper analysis. Questionnaire is conducted on teachers, school secretaries and principals. The research mainly aims to look at the opinions and practices in schools with more than 300 students.

2 Theoretical framework

2.1 Human Resource Management

This chapter will explain what human resource management is, how it has developed and provide further information about recruitment process. Human resource management can refer to terms as 'employee relations', 'labor management' or 'people management'. HRM is activities done in companies or organisations in order to manage work and people doing it. Human resource management is done in every firm that has to organise tasks and employees. Goals for HRM are to decrease expenses, run the business flexibly so that changes can be dealt as well as possible. (Boxall & Purcell, 2003, 2008)

2.1.1 History and development

The way human resource management (further HRM) works has always been linked to the ideas in the society and the models of corporate behaviour. In developed countries certain paths can be seen in general that also reflect the ways how employees are managed. (Viitala, 2012, 40)

Industrial revolution in 19th century brought up the question about how to lead the uneducated working people. When the working places got more sizeable, it was necessary to find ways to get the workers act regularly and disciplinary. By the end of 19th century the companies started to understand that taking care of the employees was more efficient than motivating them with punishments, threats and money. (ibid, 40-41)

In the beginning of the 20th century, the World Wars had a great impact on HRM as the women started to get leading positions in working life while the men were at the war zones. This resulted to improvement of intentionally considering the welfare of employees and balancing productivity.

In 1920's and 30's, the focus of HRM was in developing actions and the organisations. Personnel departments were set up to manage the employees as efficiently as possible. Another way to approach the efficiency was to let people participate in the organisational activities and considering the social environment as a factor for employee welfare and efficiency. (ibid, 41)

During the Second World War, shortage of employees raised the importance of keeping the workplace peaceful and companies started to hire professionals to develop working and its environment to be more human in order to avoid strikes and get the most profitability. Human resource departments started to organise educative processes among other duties. In 1940's also governments started to make rules about the working contracts and environment. Employers and employees got representatives that negotiated contracts for companies to follow. (ibid, 42)

HRM was a point of development and research in 1960's and 70's. Laws for working life developed greatly and human resource planning was more common as a separate field, at first as quantitative planning. Big companies used mathematical models and forecasts to predict the needs and expenses for recruiting, substitutes, education and wages. HRM became an organ that took tasks from executives of companies which lead to problems with differing leading and managing employees. (ibid, 42)

During 1980's the efficiency became more important and HR plans were made usually for three different time lines; short, medium and long term. HRM was beginning to be a competitive edge and the responsibility of the personnel was transferred back to the executives. This made professionals of human resources inner consultants in many companies. (ibid, 42)

The time period for HR planning changed to two-dimensional way in 1990's and the plans were made usually for strategic periods and more specific plans for one year at a time.

During the beginning of 21st century personnel has got in a conflicting position as employees are seen as one of the most important success factor in organisations, but at the same time the expenses of personnel need to be minimised. Keeping workers engaged to companies is also considered important, but on the contrary, maximum flexibility is expected and this has increased the amount of outsourcing and renting of the workforce. (ibid, 42-43)

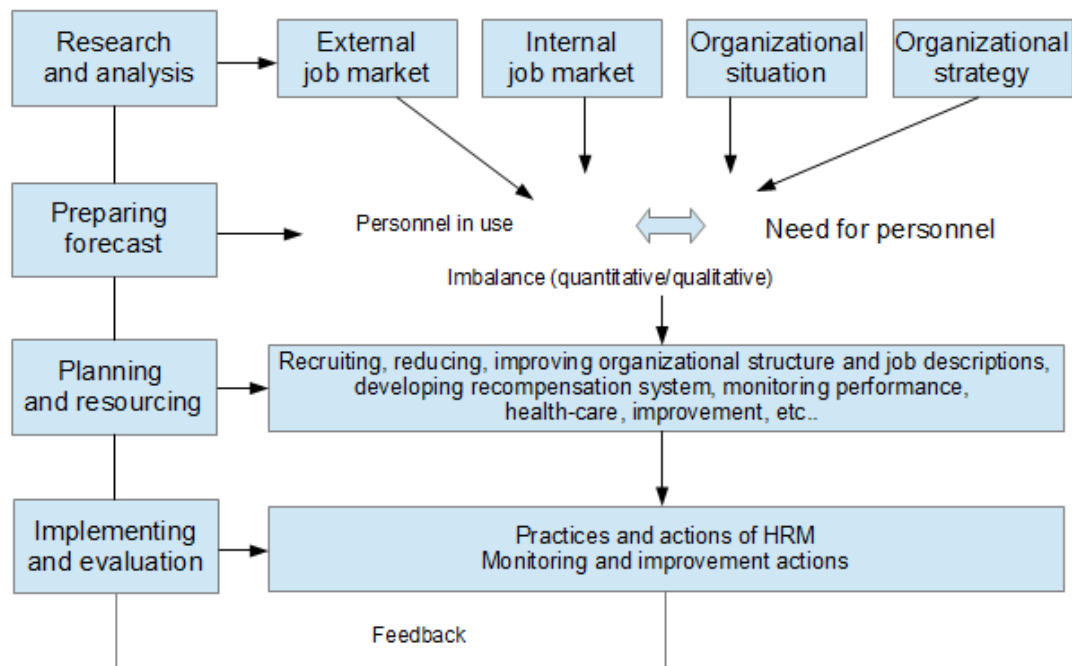
HRM work has fallen from the responsibility of the top management to the personnel itself, which has decreased the HR departments. Educating current employees and recruiting new ones are increasingly services bought from specialised companies. (ibid, 43)

2.1.2 Human resource planning

In Finland making personnel plans in organisations is required by law if the organisation has regularly more than 20 employees. Co-operation law obligates organisations to provide plans for personnel. The management of organisations should provide their personnel a plan that covers at least the following year. The plan should include amount and structure of personnel and predicted development of these two subjects, principles considering full- and part time employees, temporary and rented workforce. Estimates of the know-how, changes in it and yearly development goals should also be included in the plan. Information of how the above mentioned topics will be observed and measured should be found from the plan. In 2007 the law was renewed and it now has a mentioning that the personnel plan should pay attention especially to the special needs of aging workforce and to securing the balance between work- and family lives. (Viitala, 2012, 74)

When planning for human resources, rational approach is very usual. The starting point for the plan is business strategy of the organisation and human resources are lead from it logically towards more detailed plans. The assumption is that human resources can be estimated in advance. This approach has a goal in positioning the personnel in a cost effective and right timed way. (Viitala, 2012, 51-52)

Figure 1 Human resource planning process (Viitala, 2012, adapting Bramham 1994)



The first step of planning process is to get to know the needs for the organisation's personnel and compare it to the current situation. In this part the topics that should be covered are the amount of employees, their skills, structure of personnel and removal of it for example personnel going to pension.

Second part is to create an estimation of the future needs and what human resources from the current pool can be used to support the strategy for the future. With this it is possible to see what kind and how much new personnel must be hired.

After the need for personnel has been figured out, organisation should decide how to manage the required changes in personnel. Main options are to recruit, keep the current personnel or to let some employees go. Fourth step is to implement the plan and estimate the outcome. After this further adjustments can be made, if needed. (Viitala, 2012, 52)

2.1.3 Human resource information systems

Broderick and Boudreau (1991) have defined human resource information system (HRIS) as a combination of *“data bases, computer applications, and hardware and software necessary to collect/record, store, manage, deliver, present, and manipulate data for HR”*.

Viitala (2012) explains that every organisation deals with their human resources at least partly with the help of information systems. The bigger the organisation, the more IT-systems is needed and especially multinational organisations require widespread systems to cover their information flows.

Information technology systems are cost- and ecologically efficient, they ease the information processing and minimise mistakes. Good IT-system for HRM is easy to use, integrates necessary information and serves the whole management of an employment relationship, the system has all the information in real time. Managing information with a widespread IT-system can help with topics as; employment contract, personal, working and wage information, description of the job tasks, absences, familiarisation, development discussions, work welfare actions, education of skills, in-house transfers, working permissions, information considering the leaving of employees and personnel questionnaires.

Usually companies have at least an IT -solution for wage management that has at least background information of personnel and payroll cost information from previous periods. System including registers of employees and their knowledge base and how those should be developed is also one possibly existing database. Before getting wide IT-solution for all the HRM processes, the organisation may have multiple separate registers.

The information in the HRM IT-systems can be qualitative and quantitative. They can also include tools that help the executives to check how to manage tasks in personnel's. In addition they include forms and information about the

working contracts. The systems also produce reports about processes and predictions considering the future. (Viitala, 2012, 337)

According to Viitala (2012), the advantages for having HR system is that the information is up-to-date and it is easily accessed by those that need it, but it can be kept away from those that are not allowed to see certain data. Along with convenience to make reports about the data, it is also restored in a same way throughout the organisation. Recently, storing information in clouds that are offered by several companies, even though this can have problems concerning safety of confidential data, problems with organisation's own servers will not create pauses for accessing data.

Some of the functions in human resources that are in information systems:

- following the quantity and quality of personnel
- cost of personnel
- welfare related following
- human resource planning
- management of skills and knowledge
- preparing human resource strategy

As IT-solutions for HRM have become more common, the person using them usually is executive that can follow information about their personnel. This has led to the situation that HR professionals are often just utilising the information and other persons are saving the data to the system.

Advantages of using these systems increase organisations' competitiveness as they are cost efficient and therefore give more profits. Managing HR gets more dynamic and changes the focus to more strategic personnel management which will fasten decision making process. Sometimes these will not actually happen because of the lack of personnel, budget or time. (Viitala, 2012, 338)

2.1.4 Recruitment and selection

Recruiting is a strategic process in HRM that can have big impact on organisation's future in achieving goals and creating a business culture. Recruiting decisions can be done with long term strategy in mind, but it can also be a quick way to get knowledge and attitude or work force. Good recruiting process takes time, patience and anticipation. Decisions are hard to cancel if long term recruiting has been done and afterwards doubted. Recruiting can be done inside the organisation or from external sources. (Helsilä & Salojärvi, 2013, 119)

Helsilä & Salojärvi give one example of the steps for recruiting process, a list done by Simpson, 2002 (adapted list)

- 1) Recognition of need
- 2) Re-organising tasks or new recruiting (permission to recruit)
- 3) Task description
- 4) Profiling the wanted professional
- 5) Choosing between internal and external recruiting. These can be done at the same time. At this point, inner can be started, outer continues with next steps.
- 6) Recognition of target group (where and how to reach them)
- 7) Decision considering the recruiting method. Executive search, public search, outsourced services. Estimating cost efficiency. Public search continues with next steps.
- 8) Choosing advertising channels, creating message, agreeing with receiving applications procedures (electronic, letter, who, if any, give further information), publishing messages
- 9) Receiving applications and communicating with applicants
- 10) Decisions
- 11) Evaluating recruiting process. (feedback from applicants, executives, HR-professionals)

2.2 Education personnel

2.2.1 Legal aspects of education personnel

According to the law, every student participating in the lessons has a right to get teaching that is compatible with the curriculum. Also, the right of getting student guidance and adequate learning and studying support is mentioned in the 30§ of the law. (Basic education law 21.8.1998/628, cited 19.11.2014)

Finnish education law has regulations considering the education. On 37§, the personnel of schools is discussed. Every school that arranges education must have a principal that is responsible of the operations. Organiser must have sufficient amount of teacher positions or teachers with job contracts. In addition, the organiser can have part-time teachers, special needs assistant and other personnel. (Basic education law 21.8.1998/628, cited 19.11.2014)

Basic education law in Finland states that the teacher or principal in a long-term work relationship must be eligible. When a place of a teacher is being filled, the vacancy must be open for everyone to apply for, but the person that is chosen must be valid. In such a case that suitable candidate does not exist, a person that does not have eligibility, but has enough education and skills for the purpose, can be chosen for maximum of a one-year period. After this, the vacancy must be opened again in order to find a teacher with validity. The information considering teachers' and principals' eligibility is public and anyone has the right to ask and receive that information from the organisation that arranges basic education. (Lahtinen, 2012, 55)

2.2.2 Eligibility of teaching personnel

Eligibility requirements of the principals and teachers are prescribed in decree by government. If need be, the national board of education can give complementary specifications to the decrees. Regional state administrative agency can, for a special reason, accept a waiver to the requirements (Decree

on educational personnel eligibility requirements 14.12.1998/986, cited 19.11.2014).

Decree on educational personnel eligibility requirements gives guidelines how a person can qualify as principal, class teacher and subject teacher. The requirements for temporary teaching are stated on the chapter seven of the decree.

A person that's eligible to be a principal has:

- higher academic degree
- eligibility of being a teacher on the education program in question
- sufficient working experience from teaching position
- a degree in educational governance that is accepted by national board of education, minimum of 25 academic credits/15 academic weeks of studying educational governance in the university or other ways acquired knowledge on educational governance

Class teacher in pre- and primary schools must have following qualifications:

- Master degree in pedagogics, minimum of 60 academic credits/35 academic weeks of studies on subjects and topics that are taught in primary school, and minimum of 60 academic credits/35 weeks of teachers' pedagogical studies.
- Bachelor's degree in pedagogics or minimum of three years curriculum of primary schools' class teacher studies in Sweden, Norway or Iceland.

Subject teacher is eligible if they have

- higher academic degree
- at least 60 academic credits worth of subject teacher (subjects' or similar entirety of basic and subject studies) studies on each of the subjects they are teaching and minimum of 60 credits or 35 weeks of teacher's pedagogical studies
- when the subject that is taught, does not have national objectives in the primary education law and is not mentioned in the governments decree of division of hours, a subject teacher can be also a person that has achieved at least 60

academic credits or 35 academic weeks of studies in an university in a subject that is applicable to the subjects' curricula.

The law states, a person that has adequate education and skills required by the task can teach for a maximum of a one year period. This kind of person can only teach a period exceeding six months only if a person with required eligibility cannot be found by the time of appointment or if there is another special reason (Decree on educational personnel eligibility requirements 14.12.1998/986, cited 19.11.2014).

A substitute that is not valid cannot get a job contract lasting more than six months, if the vacancy has not been publicly open for applying. Temporary positions, lasting less than six months, the persons may be chosen in other ways.

Lahtinen (2012) mentions that getting an eligible person in an efficient way, no matter how long the period lasts, is important to make sure the student's rights are not offended. Person that does not have enough expertise on the development of children and youngsters, pedagogy and student rights cannot be qualified as a substitute. (Hakalehto-Wainio, 2012, 38)

2.2.3 Governance of primary schools

The law of primary schools explains that the teaching personnel include the principals, teachers and part-time teachers. The objective for teaching personnel is to plan and develop school work and participate to maintaining working peace according to the decree or management rules.

Primary schools have a director. Upper elementary schools and in the lower elementary school that has continuously at least twelve primary education groups, the director of the school is the principal. (Comprehensive school law, 476/1983)

The tasks of the director are to guide and supervise the teaching and educational work and to execute the administrative, financial management and teaching tasks assigned to them. Specified rules and regulations considering the directors' tasks are given with the decree and when necessary, with the rules of procedure that are set by the municipal educational administration. If the school has assistant director, the tasks between director and their assistant are shared with the guidelines decided by the local education committee. School can also have a deputy director. (Comprehensive school law, 476/1983)

Finnish education law also states that the arranger of education must evaluate the education given by them and take part when external evaluation is done. This kind of evaluation is done by Finnish Education Evaluation Centre. (Basic education law 21.8.1998/628)

2.2.4 Teacher absences in Finland

Finnish Kunta10 research examines municipality personnel's work and changes in the working environment as well as the effect on employees' health and well-being. The research is conducted in six over 100 000 habitants' cities as well as in five cities close to the main cities. These cities are Espoo, Helsinki, Vantaa, Tampere, Turku, Oulu, Raisio, Nokia, Valkeakoski, Naantali and Virrat. All 90 000 permanent and long-terms substitute workers in these municipality organisations are participating. (Työterveyslaitos, 2014)

According to Kunta10 questionnaire by Finnish Institute of Occupational Health average absence in 2010 of subject teacher is 8 days and class teacher is 11 days and kindergarten teacher is 16 days per man-year. (Työterveyslaitos, 2014)

Amount of short-term sick leaves, 1-3 days long, for subject teacher is approximately 1.1 times and class teacher is 1.7 times and kindergarten teacher is 2.3 days per working year. Longer, over 3 days long, sick leaves averages are in case of subject teacher is 0.4 times per year and class teacher is 0.55 cases and kindergarten teacher is 0.8 days per working year. This study does

not include absences from development days, courses, teacher exchanges etc. (Työterveyslaitos, 2014)

2.2.5 Comprehensive school recruiting methods in Finland

Teacher Student Union of Finland has an information page for new teachers about how to apply for work. Firstly, they explain that teachers are working either in civil servant posts or as employees. Full-time posts and teacher positions are mostly filled by public search. Sometimes also a temporary teacher position can be filled this way. The page advises that the best way to find information about jobs that are not searched publicly is to contact municipal education offices or directly to schools headmaster or director. In addition, the Union recommends teacher students to take initiative and contacting the learning institutions and show their interest in working as a teacher. It is easier to get employed after graduation after substituting and therefore getting your name known in the organisation. (sool.fi, cited 19.11.2014)

According to this, the recruiting methods for teachers do not differ from any other employment process. Though, there are certain topics that are stricter than e.g. getting employed for construction sites, the eligibility requirements must be fulfilled by the end of the recruiting period. Only a transcript of record is not enough, but a diploma must be shown. Along with the diploma, a person chosen to the post must show their criminal record. (sool.fi, cited 19.11.2014)

2.3 Substitute management

Substitute management does not only make sure that all the actions will keep going on even when the regular employees are absent, but it is also a way of developing, spreading and renewing the skills of the workforce. When developing systematic substitute system, it can also be seen as a function model for human resource development, even though the main purpose is to secure the organisations' actions. Substitute system that is organised and provides good familiarisation, decreases the skill risks in the organisation. System can be built in a way that two persons are constantly keeping each

other's notified about their working situation, but it can be also covered with chaining or substitutes that can be recycled. Substitute system is also a base for follower planning. (Viitala 2012, 192)

2.3.1 Previous studies on substitute teacher recruiting

Substituting has been more researched with the object of finding out how the substitutes can manage their class. However, some studies on how the substitutes themselves are managed can be found. This chapter includes examples of researches that have been made in Norway and the USA.

Naper (2008) has compared teacher hiring practices and educational efficiency in Norway. In Norway, there are two ways to hire teachers, decentralised and centralised. Most of the school districts use centralised system where the main decision maker is municipal school office. Some of the districts have chosen to transfer the responsibility of decision making to school principals even though the districts still are formally accountable for the hiring. The main difference between these two models is that in centralised system, the application handling, interviews, evaluations and hiring for every individual school is done by the district offices, while in decentralised system the applications and rest of the recruiting process is a matter for the principal. Naper explains that the impact of these models on effectiveness can vary as some studies suggest that because principals know their school and therefore looks for a teacher that fits to the working environment by their personality, not only the candidate with best skills.

Gershenson's (2010) paper analyses how job offers are accepted by substitute teachers from a randomised automated calling system that is used in the Michigan school districts in the USA. The district has a great amount of substitute teachers and the costs of managing them are reduced with the help of automated calling system. Substitute teachers are required to have a minimum of three years of study credits from an accredited college or university, they must pass a criminal background check, complete a 4-h orientation

program and have a valid teaching certificate or substitute-teaching license in Michigan.

According to Gershenson, the substitutes were needed approximately 20 000 times the school season 2006-2007. These requests were about evenly divided between personal arrangements and the automated calling system. Regular teachers had the possibility to name a certain substitute, but this option was not used in over 90% of the requests. Gershenson also states that the amount of call system requests started to decrease after the year changed, his conclusion about this was that as the school year goes further, the teachers find substitutes that they are comfortable with and more easily ask them personally to cover their absences.

2.3.2 Existing IT-solutions for recruitment

As substitute teacher recruitment and absence management is taking a lot of effort from teachers and principals there has been various IT-solutions created to ease the communication and collect information of existing teachers' classes and possible substitutes. Still many schools and districts lack behind and use old and slow methods.

In 2012 many Finnish municipality organisations' recruitment had been multi-polar as well as scattered. This had been a case especially in substitute hiring as there have been almost as many ways to recruit as there have been recruiters. This problem is still present and creates extra work for substitute recruitment used and uses electronic applications, single superiors' manual listings, substitute card files as well as excel-based substitute banks held by human resource departments. (Liiti, 2012)

Kuntarekry-service is a recruitment solution containing recruitment system and web service. It is used by Finnish municipalities and municipality organisations. The service has made recruitment faster and clearer for municipalities in different job areas. It has been widely taken into use around Finland and contains longer substitute teacher positions as well as regionally shows open

applications for short-term substitute teacher positions. It sufficiently allows registering oneself available for positions but does not provide actual text-message contacting in overnight cases. (Financeministry.fi, 2014)

In US there are phone applications created to connect substitute databases and communication. The process from informing about absence to finding a substitute goes for example with SubFinder as following; The teacher calls the phone number to inform the absence and the program registers the information of absence and codes it. Then the system goes through the substitute pool to find substitute and informs the teacher that who is the substitute. Some programs also allow teachers to send lesson plans by e-mail or voice mail. The solutions spare the time used to find and register information manually making significant savings for schools and districts. (Dyrli, 2004)

There are some smart phone applications, for example SubstituteAlert and SubAssistant, for Android, Iphone and Ipad for finding and contacting substitutes. The applications are designed for substitutes to be alerted real time about open positions and accept them immediately with the application. They are connected to the databases of AESOP, SubFinder and SmartFindExpress. SubstituteAlert claims that most absences are filled within 90 seconds after posting the open position. (SubstituteAlert, 2014, Accessed 26.11.2014)

In the article Searching for Subs (2007), Butler has interviewed personnel in Eagle County, Colorado schools about the advantages of electronic substitute management systems that ease the workload of teachers and administrators. Before 2003, the schools had an employee that worked part-time calling around in the early hours of morning in order to find substitutes. The workload of keeping track of available substitutes and calling has diminished as management systems such as SmartFindExpress, Sub-Finder and AESOP have come to the market. These systems allow teachers to save their absences and working hours and information about the teaching plans for substitutes use. The substitutes' version allows substitutes to find positions and get messages about them when they appear.

The article also reveals other usages for automated systems. Supervisors can get data and reports about the absences of teachers and keep track of their employees. In addition, payroll management can be included to use the systems, where the information about absences can be uploaded by payroll personnel.

3 Research findings

The empirical research is done by using Webropol online survey service. The questionnaire was sent to 203 largest schools in Finland and to 422 contacts in them. The recipients were asked if it would be possible to share the questionnaire within receiving schools' personnel. The questionnaires main receivers were teachers, principals as well as school secretaries in comprehensive schools with over 300 students. From Finland there was 166 respondents. Respondent schools for the research were selected by the case company with the objective to find the most useful information. Questionnaire is both statistical and qualitative as it is also asking specific opinions on the methods of recruiting substitute teachers.

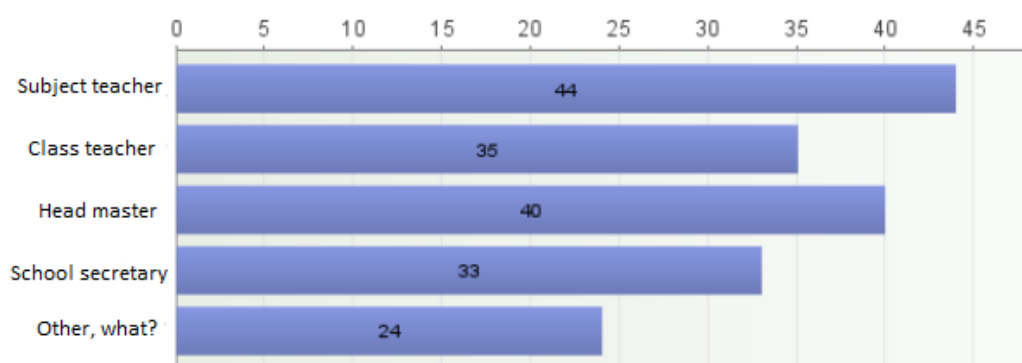
Questionnaire sent to Baltic countries was translated to English. As a consequence of low response rate, from Lithuania 7 replies, Latvia, and Estonia two from each, their market and operational methods are shortly reviewed in chapter 4.

All of the respondents were contacted straight through Webropol e-mail. Following sub-chapters will analyse the Finnish respondents.

3.1 Respondents

Out of 166 respondents, there were 44 subject teachers, 35 class teachers, 40 principals, 33 school secretaries and the rest 24 were mostly assisting principals.

Figure 2 Current job position



Out of the others, 13 were assisting principals, one deputy principal, 3 deputy directors, one pedagogical director responsible of the substitute management, one student counsellor, 3 special education teachers, one person in charge and one team leader. Respondents could choose several job positions they hold.

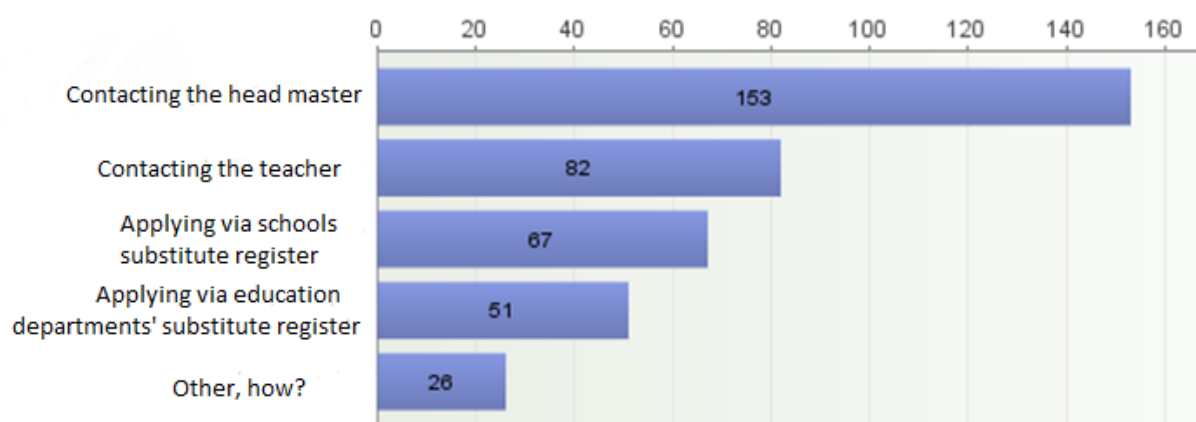
70 of the respondents have worked in their current position over 10 years. Almost 100 of the respondents worked in a school with 501-700 students, only 19 were working in schools under 500 students. Schools that had students from grades 1-10 consisted of 83 respondents, 51 respondents were from lower elementary schools and 47 from upper elementary. Two of the respondents were working in preliminary school.

3.2 Recruitment process of substitutes

The Teacher Student Union of Finland advises teacher students to contact the educational institutions themselves and this practice was also most used in the research answers. Following figure number 3 shows respondents answers on question number 6.

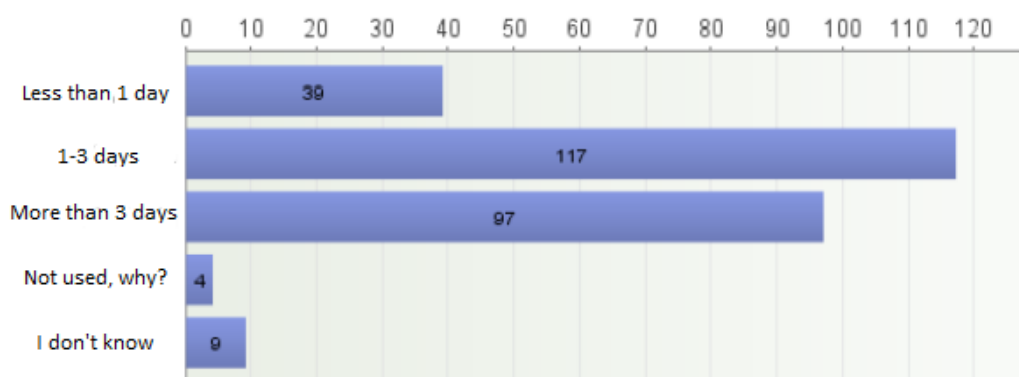
26 respondents chose the option 'Other, how?', 11 of which said that the contact person to school would be the assisting principal. Three explained that the substitutes can apply through Kuntareky.fi. Other services mentioned were Seure and Resina. School secretary was the contact person in 5 cases.

Figure 3 How a substitute can apply to work in your school?



The matter of hiring a substitute compared to the length of absence was researched in the question 7 (Figure 4). 117 respondents used substitutes when the teacher was absent 1-3 days, 97 when the absence lasted more than 3 days. Only 39 stated that they are using substitutes already when the absence was less than 1 day. Four persons answered to the open question 'Why the substitutes are not used?' One explained that other teachers will fill in, but in cases when multiple teachers are away at the same time, they will have an external substitute. Two stated that they do not have a permission to hire substitutes and one did not give an explanation at all.

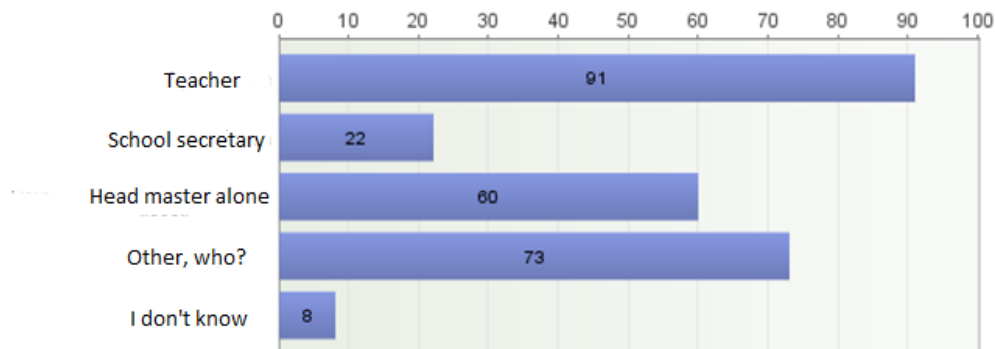
Figure 4 School uses external substitutes when the absence lasts



Throughout the questionnaire, multiple respondents mentioned that the city of Helsinki will not allow the schools to hire a substitute for the first day of teachers' absence. This has raised questions about how the work load of teachers will increase as they will have to do internal substituting more. Also safety issues were mentioned as there will be more times when the classes are without supervision.

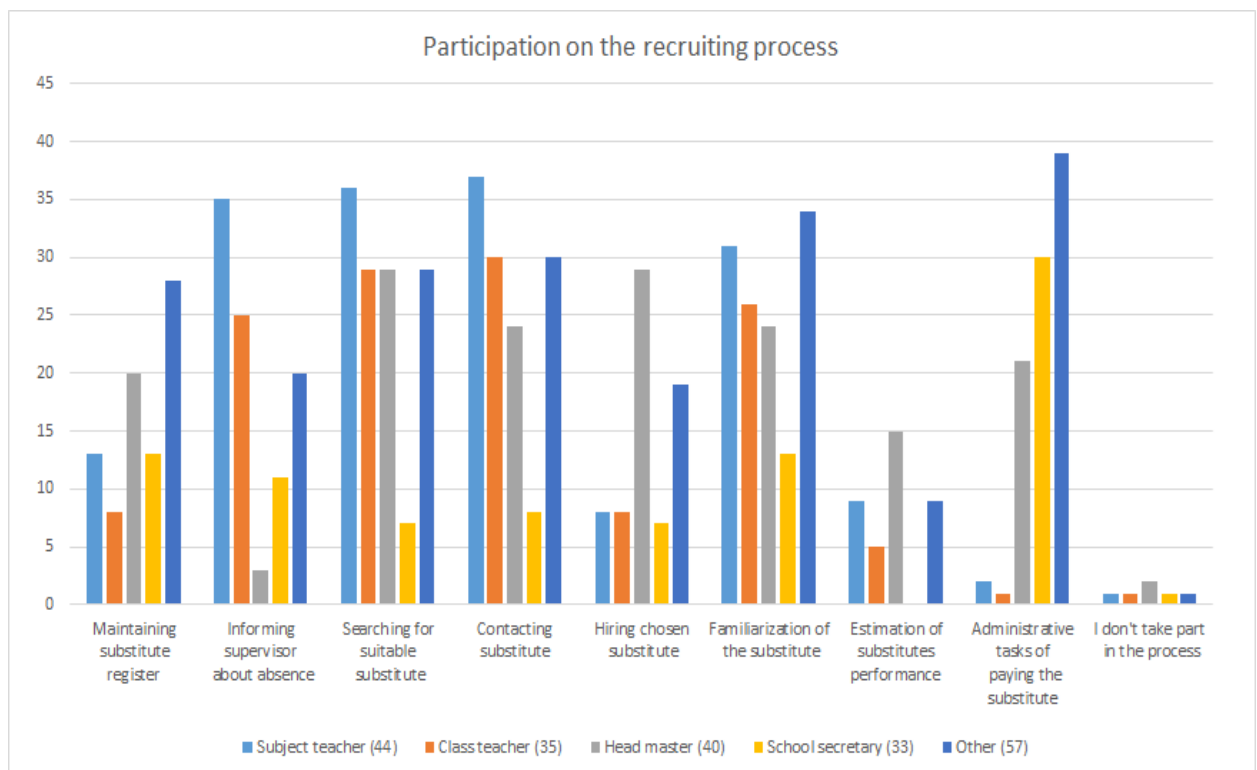
The question number 9 asked who were actually involved in the decision making process. Based on the answers, the teacher is frequently one of the decision makers. Out of the 73 who answered 'Other', 50 mentioned assisting principals are taking part to choosing the substitute. 60 answers stated that the head master alone is making the decision about substitutes.

Figure 5 Who is/are typically participating to the choosing of the substitute teacher before the hiring decision?



Below there is a figure 6 about how the tasks about participating in the recruiting process are divided between the school personnel. Only five of all of the respondents informed that they do not take part on the process.

Figure 6 Who is/are typically participating to the choosing of the substitute teacher before the hiring decision?



The responsibility of maintaining a register of substitutes is usually concern of principals and assisting principals. When it comes to absence notification, teachers in general are the majority, and naturally also others except for the principal have to inform their supervisors about their absence.

Apart from the school secretaries, searching for suitable substitute is the responsibility of whole educational personnel. Based on the open questions, it seems that the reason for subject teachers being more active on this part is due to the fact that for certain subjects, it is harder to find an eligible substitute. This causes the subject teachers to take more responsibility on finding the right substitute.

Contacting the substitute teacher is close on the previous part of the process, with the exception of teachers and assisting principals being more active and the principals less active on this part. When hiring the substitute the activity of

principals and assisting principals grows as the director of school is responsible for human resource management tasks and these tasks can be directed to assisting director as well.

Familiarisation of the substitute was responsibility for all. Mostly the teachers have to prepare a substitute folder for absences and inform which part of the curriculum should be taught during the lesson. School secretaries and assisting principals often provided help and instructions in person.

Estimating the substitute teachers' performance was not that usual and none of the school secretaries took part on this part of the process. Their biggest responsibility during the recruiting process involved the administrative tasks when paying the substitute. Administrative tasks also required involvement from the principals and assisting principals.

The question number 11 was an open question that gave a possibility to describe the process in their school and 68 respondents gave this information. For acute sickness cases, the teachers inform either the principal or assisting principal. In some cases it was possible that other teacher from the school supervises the class within their own classes. When a substitute is required, if the teacher did not already have a substitute, the person responsible for recruiting would start contacting the possible substitutes and the first one to accept the placement, will get it.

When the absence was known before and was a short-term, the teacher usually had to find the substitute themselves. For longer absences, for example maternity leaves, substitutes were the responsibility of the principal. The general procedure for the process seems to be similar, though schools have differences in the details.

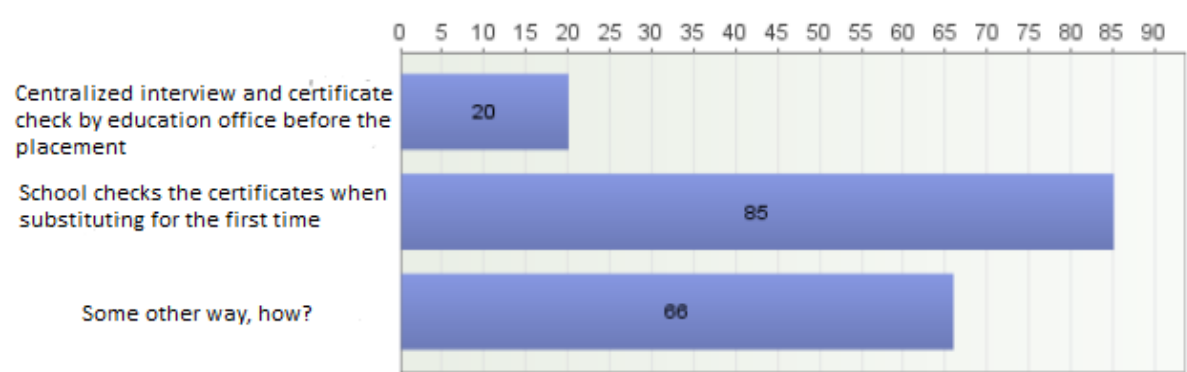
All 166 respondents gave answer to the question number 14 'In your opinion, what is the biggest problem when recruiting substitutes?'. One of the issues that was mentioned by all of the respondent groups was time. When the teachers inform about their absence in the morning, there might be only one hour to find

the substitute. Another problem that stood out was that a lot of time is spent on calls to substitutes that are not available.

The respondents wished development that would provide updated substitute registers that has information of the availability at all times, eligibility and teaching experience. Another suggestion that was mentioned was a group messaging possibility where all the people in question would see that there is a place available and when someone accepts the position.

When asked if the substitute is required to be eligible to work, 147 respondents said no and only 18 yes. The open answers to the question of how the eligibility is checked (figure 7 below) seven answered that they do not do any checking. Based on the answers it can be seen that for the teachers it is more important that the substitute can handle the class for the short-term absence. When one substitute is noticed to be suitable, they will be asked to work again. As the law states that if the position last longer than six months, the eligibility is required and therefore checking must be done.

Figure 7 How is the eligibility of the substitute checked?

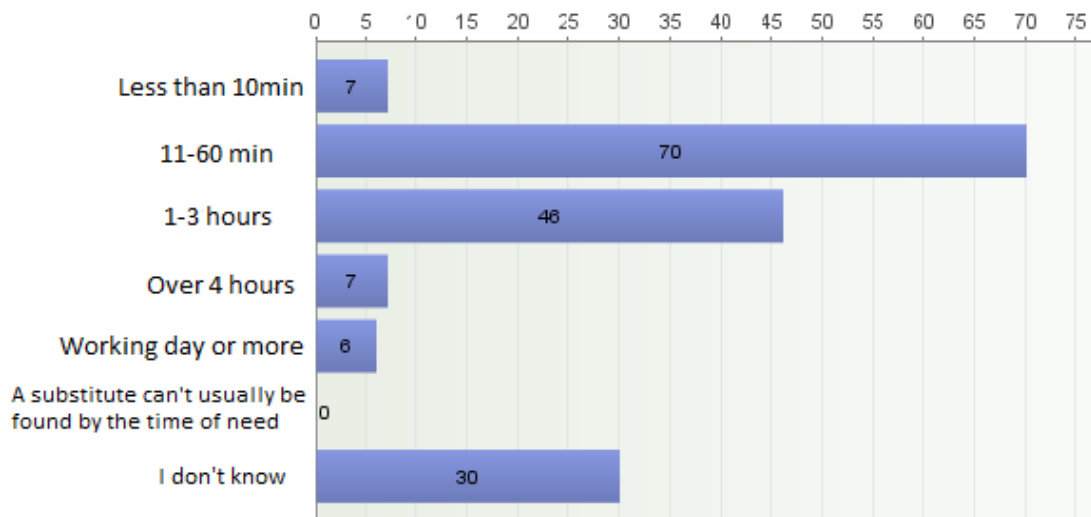


Even though multiple respondents said that time was an issue when finding the substitute, most of them did feel that in overall, the recruiting process does not take too much of their working time. This would suggest that even though the time of finding the substitute is not very long, all the other work related to substitute management takes a lot of time and causes stress for the teachers.

When asked to estimate the time that it takes to find a substitute, most regular answer was 11-60 minutes, which makes sense considering that the short-term absences occur in the mornings and therefore the search must be done before the school day starts. This was one of the issues mentioned by those feeling that it took too much time to find a substitute. Especially in bigger schools, where multiple teachers can be absent at the same time, the issue of finding a suitable substitute can be problematic. Familiarisation was also a problem, one of the respondents mentioned that writing down the instructions can take 3-4 hours of time.

None of the respondents said that a substitute could not be found by the time of the need. The explanation for this is most likely the fact that when an external substitute cannot be found, or is not allowed, other teachers will fill in for the absences.

Figure 8 On estimate, how long does it take to find a suitable substitute?



The respondents were able to give maximum of three most important factors when choosing the substitute. There were not mentionable differences between the answers of respondent groups.

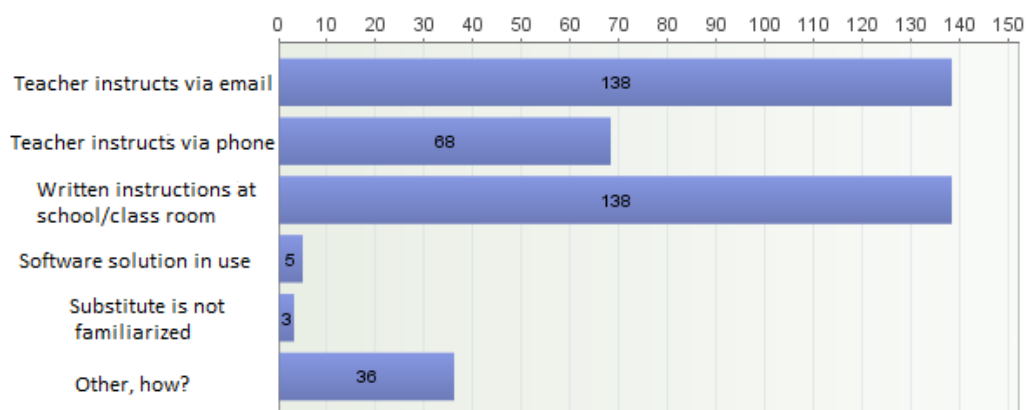
Previous experiences of the substitute were chosen as number one most often. Eligibility and availability of the substitute were next topics in the importance order. The time it took for the substitute to reach to offers was also thought to be crucial factor. The least important from the options was possibility to test the substitute before longer working periods.

3.3 Analysing use of IT-solutions and the possibilities

Familiarisation and instructing the substitute

In the question 19 of how substitutes are most commonly instructed e.g. given teaching plans, guidelines and materials, there was a possibility to choose several methods that are used. Question was compulsory to answer so from all 166 replies were received.

Figure 9 How is familiarisation of substitutes executed?



Most common ways of providing teaching plans, guidelines, materials and otherwise familiarising substitute for work is, by 138 respondents, to give out instructions by e-mail and also by 138 respondents by leaving instructions to school or class. 68 give out instructions by phone and 11 said they have instructing file at school for substitutes that is updated.

By 25 respondents someone else in school personnel gave out instructions, usually other teachers, secretary or principal. Also if the absence was known

beforehand the teacher itself would instruct the substitute in school. Only 5 had existing software for instructing substitutes and providing materials, only Wilma as software used was mentioned by name.

The three who replied “substitute is not familiarised” replied also to other methods as two of them chose e-mail instructing, one by phone, two by leaving instructions to school/class and in one case they only leave timetable if teacher is not able to instruct. So in general substitutes are always somehow familiarised and instructed, rare exceptions may occur. In other comments respondents commented that instructing the substitute takes a lot of resources and time of several school employees or that more time should be given to give out instructions about school policies.

As one respondent reported that in their larger school, specific size not mentioned, administrative tasks in substitute management have to be divided between school secretary and coordinating teacher. Coordinating teachers know the substitutes competences and they know what absent teachers want from their substitutes and can provide more specific instructions for the substitute.

Giving feedback after placement

On feedback policies 60 respondents did not know if the substitutes are given feedback after the placement, 30 of those were class or subject teachers. 57 said that feedback is given and by 44 of those it was given orally and written feedback, including e-mail, was provided by 4. Also when there is a possibility that the substitute is asked to substitute again or informed that he or she will not be chosen later was feedback method for three.

Also the amount of feedback given was related to time available and possibilities of later placements. In few cases feedback was mostly given only when it was asked or there was a strong reason to comment the class held. One commented that there was only little feedback given but still provided and

said that it would be good to have some sort of an evaluation form for both sides.

Evaluating the substitutes

58 respondents did not know if the substitutes are evaluated and 68 stated that substitutes are not evaluated after the placement. Yet 40 respondents said that substitutes are evaluated and most common situation, by 12 respondents, was that the substitute is evaluated for considering the future placement possibilities in substituting. In four cases principal and assisting principal discussed together about the substitutes performance. Four said that mostly students were asked to comment on the substitute and in 11 cases teachers evaluated the substitute. Three respondents stated that evaluation is done only in longer substitute positions and four said that employment certificate is provided as evaluation. In several cases it was clear that evaluation would be made and discussed if the substitute did not manage well enough.

Substitute databases

106 respondents have database of substitutes when the academic year begins. 32 did not know if one existent and 27 said they did not have one in the beginning of the year.

43 responded that the database is updated weekly or whenever new substitutes registered available or other changes had to be made. 23 said their databases are updated only few times a year or only in the beginning of the semester. Most commonly responsible for updating the database is the assisting principal as 38 respondents named them. Secondly school secretaries by 16, vice-principal by 11 and some of the teachers were in 6 cases. Office personnel were responsible only in two cases. There were only seven cases where respondents said they have software or commonly municipalities' database in use. Excel files or traditional paper files were mostly used inside the schools.

As improvement suggestions respondents asked for an up-to-date substitute database where it would be visible what subjects certain substitutes are competent for and that they could be searched by those criteria. Also many found frustrating the fact they do not know which of the substitutes are available in certain times and they have to contact several ones before finding someone free at that time.

For several respondents it was important to be able to removing incompetent substitutes from the list. This would also suggest that there would be need for rate substitutes by the individual users invisibly for other database users or visible for other teachers in the school for also to access opinions about potential substitutes.

Use of Kuntarekry.fi

Question 24 enquired if the respondents have used Kuntarekry.fi service. Kuntarekry.fi is an online employee finding service designed for public sector positions. Kuntarekry.fi offers job seekers to register available for positions or add them to substitute bank.

From the 166 respondents 25 has used Kuntarekry.fi substitute finding service and 11 respondents have used some other online service including five Seure users, which is employee and substitute providing service in capital city area. There was also one Sijaishaltia Oy and one Työviesti.fi user.

One commented on Kuntarekry.fi service that it is slow and inflexible when trying to find substitutes fast and that it cannot be used from home computer and in sudden absences connecting to substitutes by phone.

Use of softwares for recruitment

24 respondents are using a software solution for recruitment and from these ten use Kuntarekry.fi. Other named softwares are Työviesti service by two respondents, WhatsApp and Fonecta messaging system. One responded

described using text messages and excel database as their method but recognised that they do not have one working solution for recruitment. 26 respondents did not know if they are using software solutions for recruitment and rest 116 do not have any solution for the purpose.

Mobile phones and subscriptions

Out of 162 respondents 47 has or some of their teaching personnel have a mobile phone provided by municipality and out of those 16 said that the whole personnel in general has phones provided. 77 Respondents stated that mobile phones are not offered and 31 said that they do not know if other members of personnel have phones provided by municipality. In addition not yet all phones provided by municipalities are smart phones that would allow an application for work purposes to be taken into use. This has to be also considered in the amount of phones and mobile connections provided by municipalities in addition to the amount of phones and connections.

Municipality offers personnel a mobile subscription to 74 out of 163 of the respondents and of these 21 said that the whole education personnel is provided with subscription. 60 respondents said that municipality /school organisations do not offer mobile subscription and 29 respondents did not know if other members of staff were provided with mobile subscription.

In general more mobile subscription are offered by the municipality than phones yet there were two cases where phone was provided and not subscription and three did not know if other personnel have also the subscription even though they have the device.

Assuming the amount of mobile phones and subscription offered by the municipality is not great and widely spread it still shows that investments are made to ease the work and improve subscription in and out the organisations. Add to that not all phones provided by municipalities are smart phones that would allow an application for work purposes to be taken into use.

Use of mobile applications

For working purposes 28 respondents use a mobile application. Nine of these use Wilma message services or Wilma mobile application version Wilmoid, which is not provided by original Wilmas creator StarSoft. Eight use Outlook or other e-mail, four online calendars and two Kuntarekry service. Three respondents use cloud services such as Google Drive and Drop Box. In addition MS Office, WhatsApp, mathematics applications and Sijaishatija Oy:s message service were are used by one each. From these only Kuntarekry and Sijaishaltija Oy:s service are only ones directly used for managing substitute or to school environment in general, but WhatsApp and online calendars were also used for delivering information about absences and timetables. Ten of those who use mobile application for work also use mobile application or computer software for substitute hiring.

Mobile application market and use in working environment has been rising only recently in Finland the market does not offer many different possibilities yet that would have been taken widely in use in municipalities. Also by one respondent opinion is that substitute management programs are slow and stiff and this will more likely leave the use of them to PCs and not mobile devices.

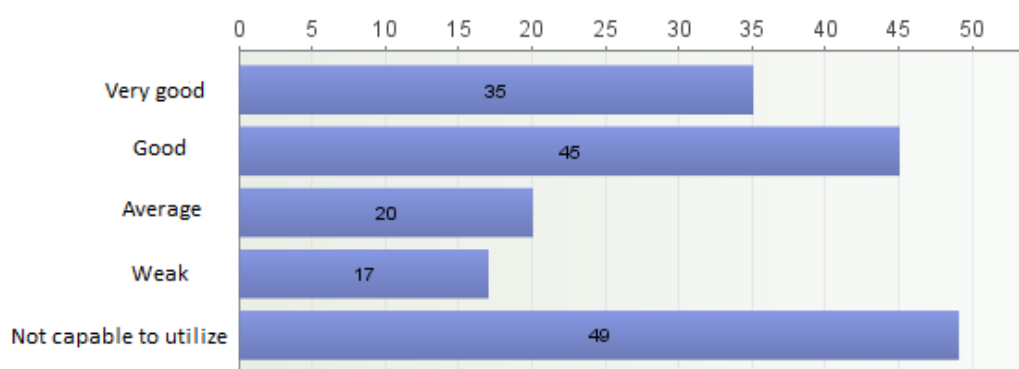
Ability and interest to take mobile application into use

The capabilities of school personnel to start using a mobile application for managing substitutes seems positive as 80 respondents out of 166 see their abilities to be very good or good. 37 see their abilities to be satisfying or weak and at the moment 49 see that they do not have abilities to start using an application designed for the purpose. Yet the question was set compulsory to answer and includes those opinions that do not even participate in the substitute hiring process at all.

Additionally capabilities and so called smart phone skills of education personnel at the moment is not relevant in a way that every time there are new software taken into use personnel is educated to use it. Yet capabilities also include

attitudes if members of education personnel are even willing to start using mobile applications for the purpose. Also there was misunderstanding in the working method of potential substitute management mobile applications as one expressed concerns about the mechanical method of applications, “It cannot replace pedagogical consideration, which is done, when are thought which substitute would be best for each class and to substitute which teacher.” Even though the idea of application would not to automatically pick a substitute but to mostly present potential substitutes and show their competencies and contacts to the recruiter to pick from.

Figure 10 How would you evaluate the capability of your school to utilise a mobile application designed for recruiting substitutes?



Moreover 90 respondents out of 166 stated that they are interested to use a mobile application for substitute hiring. This states that even though the respondents do not see their abilities to use such application to be sufficient enough have still over half of the respondents are willing to learn and take into use one. Additionally many other problems and difficulties that have arisen in the substitute management support the view that there would be need for improvement in the management and communications side in schools.

This shows that in education personnel there is interest in educating oneself to find new tools to ease the workload and improve efficiency. Also a requests for making the mobile applications easier and convenient is a matter that should be

prioritised. In addition specifically a solution for handing out instructions for substitutes was pointed out.

Municipalities joint purchase units

Municipalities have common joint purchase units such as KL-Kuntahankinnat Oy, which is in law of public purchases, owned by Suomen Kuntaliitto ry (Kuntahankinnat.fi, 2014, accessed 27.11.2014). Also KuntaPro provides tendering services for municipalities' purchases (Kuntapro, 2014). Municipalities have the choice to pick their partners to do larger purchases that demand tendering and most of the municipalities have partnered with these kinds of organisations.

For example, Savonlinna University Practice School, which is a comprehensive school for classes 1-6, has Future Classroom 2020 project going on. The main point of the project is to take tablet devices into teaching and develop the education methods in schools (Snor.fi, 2014, accessed 27.11.2014). These kinds of projects spread the use of smart phones and more sophisticated ICT-solutions in schools as well as prepare education personnel to work with mobile applications in different. Finnish national board of education's eLearning project which has participating schools around Finland.

Softwares used by municipalities

There are also several other municipality purpose substitute and employee recruitment services online in addition to Kuntarekry.fi, and many of those are for only one municipality or region such as Seuturekry Oy service, that is used only in Hämeenlinna and Forssa (Seuturekry.fi, 2014).

For management purposes in teaching there is Wilma web application. It is combining the use of Kurre 7, a teaching planning system for making timetables, planning teaching and counting working hours, and Primus, student information management database and personnel database. Wilma is widely used by teachers, students and parents and enables easy communication

between schools and homes. Teachers can communicate together with Wilma and send out information about classes (Starsoft.fi, 2014, accessed 27.11.2014). There are also two mobile applications Wilmoid and Wilu, both provided by individual makers and are not connected to StarSoft, that allow users to access Wilma without web browser by smart phones.

Wilma software contains a lot of useful information that can aid the work of substitutes and teachers instructing them. For example Wilmas teaching plans and timetables data can be directly distributed to substitute as well as the class information including homework and notes of need of revision and so on.

In US There is several substitute databases similar to Kuntarekry. Difference is there is a mobile application to report absences and connect substitutes. Applications such as SubstituteAlert and SubAssistant connect vacancies to available and competent substitutes immediately. The SEMS, SubFinder and AESOP online recruitment service databases they use allow teachers to send out teaching plans and instructions as well as monitor their working hours and plan ahead their schedules. Yet with these softwares' it is not possible to provide instructions or manage accounts by phone and the actual softwares have to be used by computer. Only reporting absences and taking on vacant jobs is possible. In addition to that the software itself seems to choose whom to contact first according to registered competencies and set preferences.

3.4 Suggestions for future research

For future research, one suggestion would be to find out how the substitute management is handled from the substitutes point of view. In order to build a fully working system that would include comprehensive schools and the universities with teacher students, this view could give other ideas and information about how willing other parties of the system are towards wider co-operation.

4 Baltic

4.1 Basic education in Baltic

Baltic States are Estonia, Latvia and Lithuania, these three countries have much common in their history, geography and they can be seen as a single market. Even though they can be grouped under the name of Baltic States, much like Nordic countries, they have differences when surveyed more closely. (Tiirinen, 2000)

Basic education in Estonia

Basic education is the minimum requirement of general education and it has three stages; grades 1-3 (stage 1), grades 4-6 (stage 2) and grades 7-9 (stage 3). There are two national curricula; national curriculum of basic school and simplified curriculum for basic school, either of which should be learned at a satisfactory level in order to graduate from basic school. The students must also pass three graduation exams in Estonian language/Estonian as a second language, mathematics and an exam of a free choice subject. In addition, a creative assignment should be completed. (www.hm.ee, accessed 26.11.2014)

Basic education in Latvia

Latvian pre-school education is compulsory for the children of ages 5 and 6 in order to prepare them for basic education. Pre-school education is arranged usually in kindergartens and in some cases at schools in pre-school groups.

Basic education is achieved at the grades 1-9 and it is compulsory. Children will start attending basic education at the year when they turn 7 years old. At the end of the basic education, students will take Basic school leaving exams. (lzm.lzm.gov.lv, 2014, accessed 26.11.2014)

Basic education in Lithuania

Primary education starts at the age of 7 and is required to attend by the Law on Education. Programme for primary education lasts four years and it can be fulfilled in primary schools, kindergarten schools, basic or secondary schools or in non-traditional educational centers such as Waldorf, Suzuki, Jesuit or Montessori systems. (smm.lt, accessed 26.11.2014)

Education in Lithuania is compulsory for the children until they turn 16 years old. Lower secondary education is started after the children have completed primary education. This section of education system is divided into two parts; part 1 (forms 5-8) and part 2 (forms 9-10, which are also forms 1&2 of gymnasium). At the end of 10th form, basic education exams are taken in Lithuanian language, mathematics and optional exam in mother tongue, which are Belarusian, German, Russian or Polish. (smm.lt, accessed 26.11.2014)

4.2 Research about Baltic

Because the respondents from Baltic were few, this part of this thesis will present the results of the practices, problems and development ideas briefly, without analysing them deeply.

Estonian respondents were subject and class teacher, either of which was also a principal. Both worked in a school with less than 300 students. Substitutes were able to apply to work by contacting the teacher on the other case, the other explained that they have one teacher that is able to substitute for 3-4 different classes. This teacher was a regular co-teacher and would cover others' absences. Because of this way of work, this respondent did not present any problems with the substitute process, only gave a thought of getting more experience so that the co-teacher could teach even more classes. It is noticeable that the respondent has used word 'class', where it would seem that they have meant 'subject'. The other respondent commented that it is hard to find a qualified teacher for substituting.

When asked about the IT-tools, one did not use them. Another did have and explained that the biggest problem is managing the battery status. This would suggest that the question was not understood in a way it was supposed to.

Both of the respondents from Latvia were principals, other also working as a subject teacher and the other as a school secretary. One worked in a school with less than 300 students and the other in a school of 501-700 students.

Substitutes were able to contact the principal when applying to work. Another way mentioned was to submitting to State Employment Agency. The persons finding the substitutes were the principals and assisting principal. Problems of the process were stated to be short-term work, low wages and a lack of system. Another respondent stated that to develop the substitute recruiting, a substitute teacher system in self-governmental level should be founded. The other wanted a budget for substitutes.

According to the answers, possibilities to utilise mobile application for substitute recruiting are either weak or non-existent. One respondent had commented on the last part that in his/her opinion, Latvia does not have a system for substitute teachers at all.

The respondents from Lithuania were 2 subject teachers, one class teacher, one principals, one school secretary and two deputies. Three worked in a school with less than 300 students, one in 301-500 students school and three had 501-700 students in their school.

Majority chose the option of substitute contacting the principal when applying to work. One respondent explained that they had teachers at school for substituting. Similar procedure was used in Estonia, as mentioned before. Two of the respondents claimed that they do not have substitutes at all. Others said that the responsibility of finding the substitute belongs to principal or deputy. Problems mentioned were insufficient budget and that the substitutes do not know the methods of the school.

Only one respondent estimated that the readiness to utilise mobile applications for substitute recruiting was very good in their school. One answered average, one weak and four of the respondents had the opinion that their school is not ready at all. It was also commented that the public schools in Lithuania do not have substitute teachers because of the lack of budget.

5 Discussion and conclusions

Based on the research, it seems that the substitute recruitment is not coherent system with standardised methods and tools. When compared the process itself to the theoretical way of recruitment, the substitute hiring takes the same steps, but naturally within a much smaller time period. It is important to have someone supervising the students and provide them the teaching they have right to have by law. In some cases, this means that the official eligibility of the teacher will not be the most valued feature of the substitute, but to provide the students with a person that can manage them. The law gives possibility to hire a substitute that is not valid for short period, which is a relief for the schools as the personnel would be in trouble when trying to find officially eligible substitutes for every absence.

One of the concerns about the databases was that they are not always updated and therefore time was wasted on calling to substitutes that either are already working at another school or did not even live at the same location anymore. Shared information with universities that have teacher students could be one solution for seeing who has eligibility to teach and which subject.

Services for recruitment that teachers are, according to the questionnaire, needing the most is to access database of available and competent substitutes and to rate and comment on their profiles to themselves or to other recruiting teachers to see ratings. In addition option to remove incompetent substitutes from the substitute database is also necessary.

Messaging service and information transmission is seen valuable time saver as it could be aimed for introducing substitute to school policies and to holding the class. Also it would allow teachers to give direct feedback to substitutes after the placement, as only 57 respondents said they give out feedback in the limits of time.

As questionnaire showed there is considerable amount of interest and personal capabilities within the education personnel to take into use a mobile application for substitute management and recruitment. Municipalities offer, in an increasing phase, more mobile phones and subscriptions for public position workers to use. There are also ongoing projects to support the use of information and communications technology in public organisations.

SubstituteAlert and SubAssistant applications models could be working and efficient in the Finnish market to serve an updated database of substitutes that is fast to access everywhere. Picked features to allow the application to send vacant position notifications by text message to chosen potential substitutes would save the time spend on calling and seeking available substitutes. New application could be connected to databases as Kuntarekry and Seuturekry to mobile application so as SubstituteAlert connects AESOP substitutes.

To explore the existing mobile solutions, that use databases and provide communication methods, it shows that there is no IT-solution to provide or access wide range of services to support substitute recruitment and management. Connecting softwares with applications such as Wilma, teaching plans and class information, and substitute databases to one be accessed by one mobile application would most likely clarify and improve efficiency of substitute hiring and management.

Comparing to the information given out from the existing solutions there should additionally be options in profiles to rate and remove potential substitutes from the suggestions lists and provide option for several search criteria such as several school subjects.

Possible problems could be that there are not enough substitutes starting to use and update their substitute profile in the database to show all the possibilities they have daily and weekly to come and substitute. Also municipalities' willingness to take such application into use and connect the existing databases to it would provide likely high start-up costs though which would be covered within reasonable time with the savings risen. Equal treatment between

substitutes is also to be considered in a way as it may not be allowed to introduce a mobile application demanding individual substitutes to own a smart phone. This matter has to be considered and research by the company and discussed between database providers and possibly law makers.

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List of Figures

Figure 1 Human resource planning process (Viitala, 2012, adapting Bramham 1994)

Figure 2 Current job position

Figure 3 How a substitute can apply to work in your school?

Figure 4 School uses external substitutes when the absence lasts

Figure 5 Who is/are typically participating to the choosing of the substitute teacher before the hiring decision?

Figure 6 Who is/are typically participating to the choosing of the substitute teacher before the hiring decision?

Figure 7 How is the eligibility of the substitute checked?

Figure 8 On estimate, how long does it take to find a suitable substitute?

Figure 9 How is familiarisation of substitutes executed?

Figure 10 How would you evaluate the capability of your school to utilise a mobile application designed for recruiting substitutes?

Thesis questionnaire

Background

1. Gender

- ☐ Male
- ☐ Female

2. Current position

- ☐ Subject teacher
- ☐ Class teacher
- ☐ Principal
- ☐ School secretary
- ☐ Other, What _____

3. How long have you worked in your current position?

- ☐ Half a year or less
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 5-10 years
- ☐ Over 10 years

4. Size of school where you work *

Amount of students

- ☐ 300 or less
- ☐ 301-500
- ☐ 501-700
- ☐ 701-1000
- ☐ More than 1000

5. Which grade of education do you teach mostly*

- ☐ Preliminary school
- ☐ Lower elementary school (grades 1-6)
- ☐ Upper elementary school (grades 7-9)
- ☐ Joint elementary school (grades 1-10)

Recruiting substitutes

6. How substitutes can apply to work in your school *

- ☐ Contacting the head master
- ☐ Contacting the teacher

- ☐ Sending an application to schools' substitute register
- ☐ Sending an application to the substitute register of educational office
- ☐ Other, how? _____

7. External substitutes are used in your school when the absence lasts *

- ☐ Less than 1 day
- ☐ 1-3 days
- ☐ More than 3 days
- ☐ Not used at all, why?
- ☐ I don't know

8. Does your school have a budget for substitutes?

- ☐ Yes, it's sufficient
- ☐ Yes, not sufficient
- ☐ No
- ☐ I don't know

9. Who is/are participating in choosing the substitute before the decision to hire? *

- ☐ Teacher
- ☐ School secretary
- ☐ Head master makes the decision independently
- ☐ Other, who?
- ☐ I don't know

10. Choose which parts of the substitute recruiting are you participating in.*

- ☐ Maintaining the substitute register
- ☐ Informing supervisor about the absence
- ☐ Searching for suitable substitute
- ☐ Contacting substitute
- ☐ Hiring the chosen substitute
- ☐ Instructing the chosen substitute
- ☐ Evaluation of the performance of the substitute
- ☐ Administrative tasks related to hiring the substitute
- ☐ I don't take part in the recruiting

11. You can describe the current practices of recruiting substitutes in your school.

Eg. Teacher informs the head master about absence -> head master contacts possible substitutes -> first one to accept the position will be chosen etc.

12. In your opinion, how long does it take from informing the absence to hiring a substitute? *

- ☐ Less than 10 min
- ☐ 11-60 min
- ☐ 1 – 3 hours
- ☐ More than 4 hours
- ☐ One work day or more
- ☐ Substitute isn't usually found by the time of need
- ☐ I don't know

13. Do you feel that finding a substitute takes too much of your time currently?

- ☐ Yes, why
- ☐ No
- ☐ I don't participate in recruiting

14. In your opinion, what is the biggest problem with substitute recruiting? *

15. In your opinion, how should substitute recruiting be developed?

Substitutes and eligibility

16. Are all of the substitutes required to be eligible?

- ☐ Yes
- ☐ No

17. How is the eligibility of a substitute checked?

- ☐ Centralised interviews and checking by the educational office
- ☐ School checks the eligibility during the first substitution
- ☐ Other, how? _____

18. What factors are three most important when recruiting a substitute?
max. 3 options (scale from 1 to 3)

	1	2	3
Usability of the substitute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time it takes to react on the offered position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eligibility of the substitute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Previous experiences of the substitute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Possibility to test the substitute before long term position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. How the substitute is familiarised (hour plans, instructions, materials etc.)?

- ☐ Teacher instructs via e-mail
- ☐ Teacher instructs via phone
- ☐ Teacher leaves instructions to school/class room
- ☐ Software solution in use for instructions
- ☐ Substitute is not familiarised
- ☐ Other, how?

20. Does the substitute get feedback from the work?

- ☐ Yes, how? ____
- ☐ No
- ☐ I don't know

21. Is the work of the substitute evaluated afterwards?

- ☐ Yes, how?
- ☐ No
- ☐ I don't know

IT-solutions

22. Are you using software solutions in substitute recruiting?*

E.g. web software, mobile application

- ☐ Yes. Which and what are the biggest problems?
- ☐ No
- ☐ I don't know

23. Does your school have a database of possible substitutes already in the beginning of the school year?

- ☐ Yes. How often is it updated and who is the person responsible of it?
- ☐ No
- ☐ I don't know

24. Have you used Kuntarekry.fi service for recruiting substitutes? *

- ☐ Yes
- ☐ No
- ☐ Some other service, which?

25. Do the education personnel have a mobile phone offered by the municipality?

- ☐ Yes
- ☐ No
- ☐ Some other personnel
- ☐ I don't know about others

26. Do the education personnel have a mobile subscription offered by the municipality?

- ☐ Yes
- ☐ No
- ☐ Some other personnel
- ☐ I don't know about others

27. Are you currently using any mobile application designed for working purposes? *

- ☐ Yes, which?
- ☐ No

28. How would you estimate the readiness of your school to utilise mobile application for substitute recruiting? *

- ☐ Very good
- ☐ Good
- ☐ Average
- ☐ Weak
- ☐ Not ready to utilise

29. Would you be interested in using a mobile application for substitute recruiting? *

- ☐ Yes
- ☐ No

30. Other development ideas/opinions considering the improvement of substitute management in your school?

*Compulsory to answer